Available online at www.sciencedirect.com

ScienceDirect

Procedia Engineering 00 (2017) 000–000

Procedia Engineering

www.elsevier.com/locate/procedia

International High- Performance Built Environment Conference – A Sustainable Built Environment Conference 2016 Series (SBE16), iHBE 2016

Green features, symbolic values and rental premium: systematic review and meta-analysis

Sumin Kim[a]*, Benson T.H. Lim[a], Jinu Kim[a]

[a]*UNSW Australia, Kensington, NSW, 2052, Australia*

Abstract

Typical determinants of office building rental prices include location, height, age, and other tangible features of a building – and this is no exception to green buildings. Although evidence shown that green office buildings command rental premium than comparable non-green office buildings, literature could not fully explain causes of the higher rental prices. In addressing this gap, the aim of this research is to identify possible rental price attributes of green office buildings. More specifically, this study attempts to (1) analyse collective influence of various rental price attributes of green buildings, (2) review methods applied to probe the rental price attributes. The study was conducted by systematic review and meta-analysis on related literature. The result shows that literature identified rental attributes of green buildings using regression analysis, and these attributes are mostly indifferent to those of non-green buildings. Limited attention was given to attributes that are specific to green buildings. More specifically, green office building' symbolic aspect was not considered when analysing its rental premium. The result will be utilised in subsequent stage of the research project to probe the significance of its impacts.

Peer-review under responsibility of the organizing committee iHBE 2016.

Keywords: Green building; Rental attributes; Meta-analysis; Symbolic value

1. Introduction

Over the last decade, evidence has shown that there are changes in the societal and regulatory demands for the building and construction industry to contribute positively to the environments and communities by the means of 'green building' [1–4] and that the number of green buildings has increased steadily in most developed countries [5].

* Corresponding author. Tel.: +61 2 9385 6488
E-mail address: su.kim@unsw.edu.au

Peer-review under responsibility of the organizing committee iHBE 2016.

For example, in Australia, there is a constant growth in the number of green buildings where the office building sector has outperformed other sectors such as residential, retail, and non-core (e.g. healthcare) sectors. To this end, the building sustainability assessment schemes (such as BREEAM (UK), LEED (US), Green Mark (Singapore) and Green Star (Australia)) help providing information on the environmental performance of buildings that typically cannot be measured by the real estate market participants [6]. It is thus not surprising that green office buildings have outperformed their non-green counterpart in terms of higher rents and sales prices, and higher occupancy rates. For instance, an early study in the US found that average rental prices for LEED certified Class A office buildings was $39 per ft2 whilst non-certified Class A offices commanded only $29 per ft2 [7]. Later, Fuerst also found that both LEED and Energy Star certified Class A office buildings consistently commanded higher prices than non-green office buildings for five years since 2005 [6].

While the above shows positive signs of green building, attributes for the green building's higher prices and their possibly different magnitudes are yet unclear. Similar to non-green office buildings, the market performance of green office buildings could be influenced by a number of different attributes such as location, building height and size, and lease term and structure. In other words, if rental price attributes for the green and non-green buildings are not much different while they do not fully explain the reasons for the higher prices, green buildings' lucrative price tag might be attributed by factors that are yet identified.

2. Research Aim and Methodology

The aim of this paper is to examine if and to what extent green buildings provide rental price premiums over comparable non-green buildings. Under this aim, specific objectives are to: (1) critically review analytical methods applied to probing those rental price attributes; and (2) analyse the collective influence of various rental price attributes of green buildings. Rental prices of green office buildings were used in this study as an indication of market performance – a procedure that has been commonly adopted by previous studies such as Kok and Jennen [8], Reichardt et al. [9], and Das et al. [10]. Through reviewing of literature, attempts had been made to identify the market performance between green and non-green office buildings in their respective markets. Thereafter, by using SPSS, meta-analysis was conducted to: (i) determine the degree and consistency of the green office buildings' market performance across different geographical locations, and (ii) measure the magnitudes of each identified rental price attribute. To this, qualified models and their attributes were extracted from the literature. Then, as it is suggested by Durlak [11], standardised effect sizes of current and past literature were compared using meta-correlation analysis. Cohen's benchmark was also used as it is powerful especially when the number of identified literature are relatively small [12]. Lastly, meta-regression analysis was performed to analyse the effect of each identified attribute [13]. To this, each attribute was coded as a binary variable for its presence (i.e. 1=yes, 0=no). As a part of meta-regression analysis, heterogeneity test was conducted to determine the degree of diversity between the studies and their models. This includes computation of I^2 based on Cochran's Q and degree of freedom (df). The obtained results were interpreted using several indicators such as beta coefficient (β) and p-value.

3. Critical review

3.1. Analytical method adopted

Table 1 summarises the list of studies that looked at the rental prices of green office buildings and its attributes. Overall, these post-2000s literature has consistently found that green buildings command rental price premium over the non-green counterpart. A considerable amount of research has typically used hedonic regression modelling techniques such as ordinary least squares (OLS) in their analyses. In fact, hedonic pricing models are widely utilised in the literature on real estate market performance (i.e. rental and sales prices) [14] – regardless if the study focus was green or non-green buildings – despite of its limitations such as subjective choice of covariates [15]. Quite often, several equations and models were developed to measure the degree of rental price premium of green buildings.

Table 1. Studies on rental prices of green office buildings

Reference	Year	Context	Analytical Methods	Rental Premium
[16]	2016	US	Logistic regression, OLSDV regression, Propensity Score Matching technique (hereafter PSM), Kruskal-Wallies test	Y
[17]	2014	UK	Regression analysis, OLS analysis, PSM, Semi-log equation, Non-parametric comparison	Y
[18]	2013	US	Regression analysis, PSM, Semi log equation	Y
[8]	2013	Netherlands	Regression analysis, Walk Score algorithm, log-equation	Y
[9]	2012	US	Panel data regression (difference-in-differences (DID) and fixed-effects models), cross-sectional regression, Pooled OLS, Log-linear hedonic model	Y
[10]	2011	US	Regression analysis	Y
[19]	2011	UK	Hedonic regression analysis, Semi-log equation, Non-parametric comparisons, PSM, Kernel density estimators	Y
[20]	2011	US	Robust regression analysis, OLS regression analysis, Fractional logit models, Log-equation	Y
[21]	2011	US	Hedonic regression analysis, Log-equation, Least square dummy variable (LSDV) approach	Y
[22]	2011	UK	Hedonic regression analysis, Log-equation	Y
[23]	2011	Australia	Hedonic regression method, Log value analysis, Correlation analysis	Y
[24]	2010	US	Panel regression	Y
[25]	2010	US	OLS & 2SLS analysis, T-statistics, Hedonic regression analysis	Y
[26]	2010	US	Hedonic regression analysis, Semi-log equation, PSM	Y
[27]	2010	US	Regression analysis, Log-equation, PSM	Y

Meanwhile, studies like Robinson and Sanderford [16] documented that green office buildings are quite unique compared to their non-green counterparts. However, to make a fair comparison, it is noted that the quality differences between these two types of buildings should be controlled [18]. To this end, the propensity score matching technique was often used to control any possible inherent heterogeneity of studied variables between green certified and non-certified buildings via hedonic modelling [14]. Generally, propensity score weightings were applied to the "treated" green buildings and "non-treated" non-green buildings, and allowed researchers to minimise the impact of difference between green and non-green buildings in terms of their size, storeys, and other factors that could possibly impact on their rental prices. The identified difference between these two different types of buildings and their impacts are discussed in more detail in the following sub-section.

3.2. Rental Price Attributes for Green Office Buildings

Figure 1 summarises the frequency of those significant rental price attributes listed in previous studies. It is notable that, out of the 30 attributes identified, the attribute of 'certification' has the highest frequency (*f*) of 35 - thus implying that the 'green building' label could be the key factor driving rental premium for certified buildings. This is further demonstrated by the recent increasing emphasis placed on the attributes of 'dual certification' ($f = 8$) and 'certification vintage' ($f = 9$), as shown in Figure 1. Our findings also reveal that conventional rental price attributes such as building age ($f = 31$), size ($f = 28$), number of storeys ($f = 24$), and class (e.g. A-grade, B-grade) ($f = 23$) are key drivers of rental price premium for green buildings. To this end, studies have shown that green buildings are generally larger, younger, taller, and of better quality - thus could easily command higher rental prices than their non-green counterparts [8, 9, 20, 21].

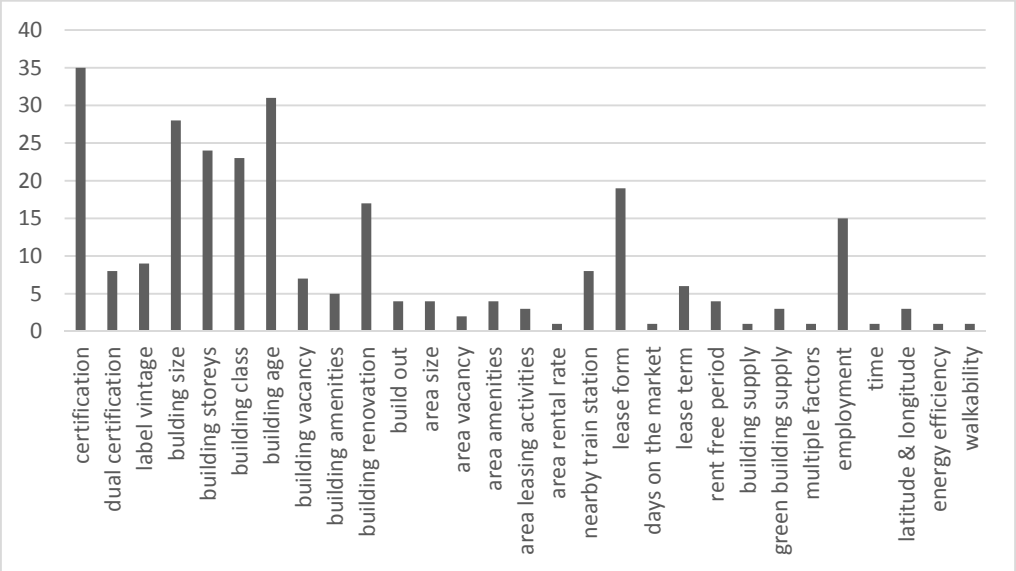

Fig 1. Identified attributes for the rental premium of green office buildings

Added to the above, Figure 1 shows that the attribute of 'lease form' is commonly found by researchers to have significant effect on rental prices (with $f = 19$). For example, Wiley [25] examined the effect of 10 different lease types (i.e. double net, modified gross, negotiable, net, plus all utilities, plus cleaning, plus electricity and cleaning, plus electricity, triple net, utilities and char) on rental prices. They found that these lease types could collectively bring about superior rental prices for LEED and Energy Star certified green buildings in US. This phenomenon could partially be related to the energy efficiency design of green buildings, whereby the significant reduction in maintenance and operation costs could motivate tenants to pay higher rental prices for green spaces. For tenants' perspective, reduced energy usage is directly related to the tenants' expenditure on green building occupancy.

Next, we found that the attribute of 'employment' is another determinant of rental price premium (with $f = 15$). Researchers had operationalised 'employment' into employment growth rates and office building growth and studied on these could influence the rental premium for green buildings, and found that employment growth rates have positive direct effect on the rental premium of green buildings [9, 18], and at the same time, their rental premium is significantly moderated by the level of stock available in the market [17, 19]. This is consistent with a study suggesting that employment is an approximate proxy for demand for office buildings [28].

Meanwhile, it appears that no or little study has found the effect of sustainability and tenant related variables on rental prices. To this end, very small number of studies [21] have occasionally found building sustainability accreditation level played a role in the higher rents – despite the fact that the higher ratings are typically led to better IEQ (Indoor Environmental Quality) and other environmental benefits (e.g. reduction of CO2 emission and energy consumption).

Despite the previous attempts to investigate the market performances of green buildings and their attributes, it is yet unclear whether the observed rental premium is consistent across different sources of literature. Moreover, it remains unknown if and to what extent these identified attributes fully accounted for the premium. Hence, meta-analysis was performed in this study to measure the standardised effects.

4. Meta-analysis on Green Office Buildings' Rental Prices and its Attributes

To measure the consistency and magnitude of each rental price attributes found from the literature, meta-analysis was conducted. To this, literature were refined based on the following criteria; (1) literature directly compared rental

prices of green and non-green office buildings based on actual data, (2) literature provided details on statistical analysis required for meta-analysis (e.g. R-Squared, Sample numbers for both green and non-green office buildings). When there were multiple analyses identified within a study (e.g. single control group and several treatment groups), they were treated as independent literature [29]. Accordingly, nine literature consisting 34 models were selected.

Based on the selected data, R-squared (R^2) and Adjusted R-squared (R^2_{adj}) which are also known as the "shrinkage" were extracted. The R^2 values are ranging from 0.470 to 0.946, with the computed mean and median of 0.665 and 0.675, respectively. As for R^2_{adj} values, the ranges are from 0.410 to 0.945 and their computed mean and median are 0.642 and 0.620, respectively. Overall, the mean R^2_{adj} value of 0.642 indicates that the literature only explains 40.16% of the standard deviation of the 'rental price' variable for green office buildings.

Then, the "standardised" effect sizes of each literature were computed based on R^2 and R^2_{adj} and thereafter compared among the identified literature and against the Cohen's benchmark (i.e. small: f^2 = 0.02, medium: f^2 = 0.15, large: f^2 = 0.35) [30]. The Cohen's f^2 was selected as it measures the standardised effect size for widely used regression analysis.

$$f^2 = {R^2}/{1 - R^2} \tag{1}$$

Overall, the selected 34 models showed f^2 ranging from 0.887 to 17.519 and f^2_{adj} ranging from 0.695 to 17.182. Of these, the model proposed by Das et al. [10] who investigated rental price dynamics of green office buildings in San Francesco and Washington DC has shown exceptionally high standardised effect sizes (17.519 for f^2 and 17.182 for f^2_{adj}). Meanwhile, the correlation test results using SPSS show that there is no significant relation between date of publication and f^2. However, comparisons against the Cohen's benchmark suggest that the selected 34 models have substantially large standard effect size of over 0.35. This thus indicates that there is a huge difference in the mean value of rental prices between green and non-green counterpart. In other words, green buildings' rental premium was not only limited to certain literature. Rather, the substantial premium was existed across different studies conducted in different areas and time.

Next, meta-regression analysis was performed. Table 2 shows the meta-regression results based on over 20 different identified rental price attributes for green buildings from the selected literature. Based on the Q generated by SPSS, I^2 was calculated using the formula below and compared against the rough guideline suggested by Cochrane (e.g. considerable heterogeneity if I^2>75%) [31].

$$I^2 = \left\{{(Q - df)}/{Q}\right\} \times 100\% \tag{2}$$

A statistical test for heterogeneity shows that there is a considerable heterogeneity within the literature and their models (I^2=95.50%). This might be due to the different sample numbers used by different literature. Moreover, strong publication bias in the selected literature might play a role – all the literature selected for meta-analysis were peer-reviewed journals mostly from the US. This is mainly due to the literature from the non-academic sources (e.g. technical reports) did not present the statistical details required for meta-analysis. Moreover, limited access to the required data (e.g. CoStar) outside the US have made non-US based academics hard to conduct any in-depth analyses on green office buildings' rental performance.

The considerable level of heterogeneity within the literature leads to usage of the random-effect model. As expected, green building certification had a significant influence on the rental premium of green buildings (β=0.1466, p=0.0329). This confirms that the "green labelling" effect does exist in the rental price premium for green office buildings. Also, standard building features such as age (β=0.2050, p=0.0035) and storeys (β=-0.3919, p=0.0019) were found as significant attributes along with building renovation (β=-0.2191, p=0.0136).

Table 2. Result of the Meta-analysis

------- Descriptives -------							
Mean ES	R-Square	k					
2.5271	0.9543	34					
------- Homogeneity Analysis -------							
	Q	df	P				
Model	700.4569	24.0000	0.0000				
Residual	33.5646	9.0000	0.0001				
Total	734.0215	33.0000	0.0000				
------- Regression Coefficients -------							
	B	SE	-95% CI	+95% CI	Z	P	Beta
Constant	1.2021	0.7367	-0.2418	2.6461	1.6318	0.1027	0.0000
Certification	2.2582	1.0587	0.1831	4.3333	2.1329	0.0329	0.1466
Dual certification	0.5879	0.4690	-0.3313	1.5071	1.2535	0.2100	0.0955
Label vintage	-0.3578	0.6203	-1.5736	0.858	-0.5768	0.5641	-0.0599
Building size	-2.0756	1.0747	-4.1819	0.0307	-1.9314	0.0534	-0.3443
Building storeys	-2.0921	0.6726	-3.4105	-0.7737	-3.1103	0.0019	-0.3619
Building class	-1.3883	1.0488	-3.4438	0.6673	-1.3237	0.1856	-0.2503
Building age	1.5426	0.5277	0.5083	2.5768	2.9233	0.0035	0.2050
Building vacancy	0.2680	0.6024	-0.9126	1.4487	0.4450	0.6563	0.0364
Building amenities	1.1941	0.6638	-0.1070	2.4953	1.7988	0.0720	0.1616
Building renovation	-1.1518	0.4667	-2.0666	-0.2370	-2.4678	0.0136	-0.2191
Build out	3.0300	1.0728	0.9272	5.1328	2.8243	0.0047	0.3666
Area size	0.3274	1.7883	-3.1778	3.8325	0.1830	0.8548	0.0405
Area vacancy	1.1063	0.7664	-0.3958	2.6084	1.4436	0.1489	0.0936
Area amenities	0.0169	1.1003	-2.1397	2.1736	0.0154	0.9877	0.0021
Gross rent of a building	12.6063	1.2592	10.1383	15.0743	10.0116	0.0000	0.7077
Train station	2.0038	0.7859	0.4634	3.5441	2.5497	0.0108	0.3107
Lease form	2.0046	0.4420	1.1384	2.8709	4.5357	0.0000	0.3812
Days on the market	0.4551	0.8817	-1.2729	2.1832	0.5162	0.6057	0.0288
Lease term	-0.7564	0.6452	-2.0210	0.5082	-1.1723	0.2411	-0.1085
Rent free period	-0.2207	0.6458	-1.4864	1.0450	-0.3417	0.7325	-0.0267
Green building supply	-0.6924	0.6452	-1.957	0.5723	-1.0731	0.2832	-0.0737
Multiple factors	-0.2137	1.0569	-2.2852	1.8578	-0.2022	0.8398	-0.0139
Employment	0.3292	0.6204	-0.8869	1.5452	0.5306	0.5957	0.0623
Longitude & latitude	-0.5143	1.3607	-3.1813	2.1528	-0.3779	0.7055	-0.0560
------- Maximum Likelihood Random Effects Variance Component -------							
v = .31233							
se(v) = .07753							

Negative beta coefficients of building storeys and renovation attributes indicate that the rental premium decreases as green buildings get taller and if they are renovated. Whilst numerous studies [8, 9, 20, 21] suggested that green buildings' rental premium could be attributed by its taller height and better built quality, this could be a sign that it is, in fact, the other way around. Moreover, the 'lease contract' features (β=0.3812, p=0.000) and 'total gross rent of a building' (β=0.7077, p=0.000) played a role in dictating the rental premium. In fact, this is no surprising when considering green buildings are designed to save energy bills whilst different lease contract features (e.g. net rent vs gross rent) might significantly influence on the actual rents that tenants need to pay. Also, it seems that green buildings are no exception to the locational effects as proximity to nearby train station (β=0.3107, p=0.0108) was also found as a significant attribute along with others. In contrast, access to nearby amenities (β=0.0021, p=0.9877) only have a limited influence.

Overall the meta-regression results show that not only the 'green building certification' but also the conventional office building rental price attributes (e.g. location, building characteristics, lease contract features) are factors driving the rental premium for green buildings. However, magnitudes of each attribute do vary. One of the most salient findings here is that total gross rent of a building has the strongest positive relationship with their rental premium.

5. Conclusions

Literature show that green buildings are not just environmentally friendly and energy efficient. In fact, they are also strong performers of the real estate market. Using regression analyses in conjunction with other techniques, literature found that green office buildings do command rental price premium over the comparable non-green office buildings. The strong market performance of green office building was not only influenced by a single attribute. Rather, it was a result of complex interaction between various attributes. Result of the meta-analysis confirms that attributes like certification, locational, building characteristics, and lease contract features had a strong influence on the rental prices of green buildings. Nevertheless, literature could not fully explain the reasons behind the rental price premium. One of the possible reasons for this is literature's adopted analytical methods and variables that are similar to the studies on non-green office building performances. Moreover, the certification effect was indeed relatively smaller compared to the other attributes. All these indicate that there would be another reasons for the premium. In fact, when considering the uniqueness of the green buildings, assessing its market performance may require a different approach. As Ledgerwood [32] suggested, consideration on both "tangible" (e.g. building height, size) and (ii) its "symbolic" (e.g. intangible benefits from the green image) aspects would provide a better indication on properties' prices. To this extent, analysis on the green buildings' lucrative price tag might require consideration on its "special meanings" to its users which need to be further investigated.

However, we do acknowledge that there are some limitations in this research. Although meta-analysis in this research is very useful as it combines already existing data from different studies, the result of the analysis might be influenced by unique nature of each study. As each study was conducted in different contexts (e.g. different time and geographical area), this might influence characteristics of their data and subsequently the meta-analysis outcome. Moreover, some of the identified rental price attributes (e.g. leasing activities within the area, building supply) were excluded from the meta-analysis due to the erroneous result produced by SPSS. Hence, we suggest that the associations found in a meta-regression here should be considered hypothesis generating and not regarded as proof of causality.

References

[1] Pentland, W. 2012. *The Brilliant Economics of Green Buildings*. http://www.forbes.com/sites/williampentland/2012/03/18/the-brilliant-economics-of-green-buildings/. Accessed 26 April 2016.

[2] Myers, G., Reed, R., and Robinson, J. Sustainable Property – The Future of the New Zealand Market. *Pacific Rim Property Research Journal*. 2015; 14,3:298–321.

[3] Eichholtz, P. M., Kok, N., and Quigley, J. M. *WHO RENTS GREEN? ECOLOGICAL RESPONSIVENESS AND CORPORATE REAL ESTATE*. PROGRAM ON HOUSING AND URBAN POLICY, Berkeley. 2010.
[4] Chau, C. K., Tse, M. S., and Chung, K. Y. A choice experiment to estimate the effect of green experience on preferences and willingness-to-pay for green building attributes. *Building and Environment*. 2010; 45,11:2553–61.
[5] Dodge Data & Analytics and United Technologies. *World Green Building Trends 2016*. *Developing Markets Accelerate Global Green Growth*. Dodge Data & Analytics. 2016.
[6] Fuerst, F. Building momentum: An analysis of investment trends in LEED and Energy Star-certified properties. *J Retail Leisure Property*. 2009; 8,4:285–97.
[7] Nelson, A. J. 2007. *The Greening of U.S. Investment Real Estate – Market Fundamentals, Prospects and Opportunities*. http://realestate.deutscheawm.com/content/_media/Research_The_Greening_of_US_Investment_Real_Estate_November_2007.pdf.
[8] Kok, N. and Jennen, M. The impact of energy labels and accessibility on office rents. *Energy Policy*. 2012; 46:489–97.
[9] Reichardt, A., Fuerst, F., Rottke, N. B., and Zietz, J. Sustainable Building Certification and the Rent Premium: A Panel Data Approach. *Journal of Real Estate Research*. 2012; 34,1:99–126.
[10] Das, P., Tidwell, A., and Ziobrowski, A. Dynamics of Green Rentals over Market Cycles. Evidence from Commercial Office Properties in San Francisco and Washington DC. *Journal of Sustainable Real Estate*. 2011; 3,1:1–22.
[11] Durlak, J. A. How to select, calculate, and interpret effect sizes. *Journal of pediatric psychology*. 2009; 34,9:917–28.
[12] Vacha-Haase, T. and Thompson, B. How to Estimate and Interpret Various Effect Sizes. *Journal of Counseling Psychology*. 2004; 51,4:473–81.
[13] The Cochrane Collaboration. n.d. *9.6.4 Meta-regression*. http://handbook.cochrane.org/chapter_9/9_6_4_meta_regression.htm. Accessed 21 August 2016.
[14] Sopranzetti, B. J. 2010. *Hedonic Regression Analysis in Real Estate Markets: A Primer*. Springer US. http://link.springer.com/chapter/10.1007/978-0-387-77117-5_78/fulltext.html.
[15] Jiang, L., Phillips, P. C. B., and Yu, J. 2014. *A New Hedonic Regression for Real Estate Prices Applied to the Singapore Residential Market*.
[16] Robinson, S. J. and Sanderford, A. R. Green Buildings: Similar to Other Premium Buildings? *J Real Estate Finan Econ*. 2016; 52,2:99–116.
[17] Chegut, A., Eichholtz, P., and Kok, N. Supply, Demand and the Value of Green Buildings. *Urban Studies*. 2014; 51,1:22–43.
[18] Eichholtz, P., Kok, N., and Quigley, J. M. The Economics of Green Building. *Review of Economics and Statistics*. 2013; 95,1:50–63.
[19] Chegut, A., Eichholtz, P., and Kok, N. *The Value of Green Buildings New Evidence from the United Kingdom*. 2011.
[20] Fuerst, F. and McAllister, P. Eco-labeling in commercial office markets. Do LEED and Energy Star offices obtain multiple premiums? *Ecological Economics*. 2011; 70,6:1220–30.
[21] Fuerst, F. and McAllister, P. Green Noise or Green Value? Measuring the Effects of Environmental Certification on Office Values. *Real Estate Economics*. 2011; 39,1:45–69.
[22] Fuerst, F. and McAllister, P. The impact of Energy Performance Certificates on the rental and capital values of commercial property assets. *Energy Policy*. 2011; 39,10:6608–14.
[23] Newell, G., MacFarlane, J., and Kok, N. *Building better returns. A Study of the Financial Performance of Green Office Buildings in Australia*, Sydney. 2011.
[24] Pivo, G. and Fisher, J. Income, Value, and Returns in Socially Responsible Office Properties. *Journal of Real Estate Research*. 2010; 32,3:243–70.
[25] Wiley, J. A., Benefield, J. D., and Johnson, K. H. Green Design and the Market for Commercial Office Space. *The Journal of Real Estate Finance and Economics*. 2010; 41,2:228–43.
[26] Eichholtz, P., Kok, N., and Quigley, J. M. Doing Well by Doing Good? Green Office Buildings. *The American Economic Review*. 2010; 100,5:2492–509.
[27] Eichholtz, P., Kok, N., and Quigley, J. M. 2010. *Sustainability and the Dynamics of Green Building,*G51, M14, D92. http://www.usgbc.org/Docs/Archive/General/Docs7094.pdf.
[28] Jones, C. An economic basis for the analysis and prediction of local office property markets. *Jnl of Property Val & Invest*. 1995; 13,2:16–30.
[29] Borenstein, M. *Introduction to meta-analysis*. Statistics in Practice. John Wiley & Sons, Chichester, U.K. 2009.
[30] Cohen, J. *Statistical power analysis for the behavioral sciences*. Academic Press, New York. 1977.
[31] The Cochrane Collaboration. n.d. *9.5.2 Identifying and measuring heterogeneity*. http://handbook.cochrane.org/chapter_9/9_5_2_identifying_and_measuring_heterogeneity.htm. Accessed 20 August 2016.
[32] Ledgerwood, A., Liviatan, I., and Carnevale, P. J. Group-Identity Completion and the Symbolic Value of Property. *PSYCHOLOGICAL SCIENCE*. 2007; 18,10:873–8.